

P.O.L.

EUROPEAN NETWORK OF INTEREST IN THE
MEASUREMENT AND ANALYSIS OF MEAN SEA LEVELS
FROM TIDE GAUGE RECORDS

BY
P.L. WOODWORTH, N.E. SPENCER AND G.A. ALCOCK

REPORT NO. 7
1989

NATURAL ENVIRONMENT
PROUDMAN
OCEANOGRAPHIC
LABORATORY
RESEARCH COUNCIL

PROUDMAN OCEANOGRAPHIC LABORATORY

**Bidston Observatory
Birkenhead, Merseyside, L43 7RA, UK
Tel: 051 653 8633
Telex: 628591 Ocean B
Fax: 051 653 6269**

Director: Dr. B.S. McCartney

Natural Environment Research Council

PROUDMAN OCEANOGRAPHIC LABORATORY

REPORT NO. 7

European Network of Interest in the Measurement and Analysis
of Mean Sea Levels from Tide Gauge Records

P.L. Woodworth, N.E. Spencer and G. Alcock

1989

DOCUMENT DATA SHEET

AUTHOR		PUBLICATION	
WOODWORTH, P.L., SPENCER, N.E. AND ALCOCK, G.		DATE 1989	
TITLE			
European Network of Interest in the Measurement and Analysis of Mean Sea Levels from Tide Gauge Records.			
REFERENCE			
Proudman Oceanographic Laboratory Report, No. 7, 44pp.			
ABSTRACT			
<p>This report attempts to define a representative current 'network' or community of engineers and scientists engaged in the measurement and analysis of European mean sea levels. Addresses are provided for PSMSL data suppliers, for GLOSS contacts and for individual researchers.</p>			
<p>This report has been partly funded by the Commission of the European Communities.</p>			
ISSUING ORGANISATION		TELEPHONE	
Proudman Oceanographic Laboratory		051 653 8633	
Bidston Observatory		TELEX	
Birkenhead, Merseyside L43 7RA		628591 OCEAN B.	
UK		TELEFAX	
Director: Dr B S McCartney		051 653 6269	
KEYWORDS		CONTRACT	
TIDE GAUGE RECORDS		PROJECT	
MEAN SEA LEVEL		MLI-22-5	
SEA LEVEL MEASUREMENT		PRICE	
EUROPEAN WATERS		£ 14	

Copies of this report are available from:
The Library, Proudman Oceanographic Laboratory.

Introduction

This report attempts to define a representative current 'network' or community of engineers and scientists engaged in the measurement and analysis of European mean sea levels.

For many years most sea level research has been undertaken on a local or national basis for the purposes of navigation or coastal protection. However, there is a growing realisation that many studies of sea level changes, in particular those concerning geodesy, geology and climatology, have also to be undertaken on a regional (in this case European) or worldwide basis. In such a situation, it is essential that researchers know who their international counterparts are in order that expertise can be combined.

There are already in existence several comprehensive 'networks' or address lists of sea level researchers. The Permanent Service for Mean Sea Level (PSMSL), Bidston Observatory, Birkenhead, U.K. holds the addresses of all tide gauge operators worldwide and, through its distribution of the global mean sea level (MSL) dataset and by means of its receipt of requests for advice and information on sea level matters, has compiled an extensive mailing list of scientists from almost every country in the world. However, there is also a considerable amount of MSL research undertaken using locally-obtained datasets for which the PSMSL will not necessarily have recorded the names of the individuals concerned. A second large worldwide 'network' is that defined by the membership list of the International Geological Correlation Programme (IGCP) Project 200 (Shennan and Pirazzoli, 1987) which includes the names of scientists from many disciplines interested in sea level research over all timescales and not necessarily that involving tide gauge data. A third example is that of the International Geographical Union (IGU) Commission on the Coastline Environment (for a review, see Bird (1985)), the participants in which are clearly also interested in the mechanisms and impacts of sea level changes.

The 'network' described in this report, therefore, is intended to complement and not to duplicate those lists already in existence. It concentrates on tide gauge measurements and the analysis of MSL's in the European region. It forms an essential component of and aid to the Commission of the European Communities (CEC) Climate Programme and provides a source of contacts for the potential development of a regional tide gauge network constructed alongside the Global Level of the Sea Surface (GLOSS) global network (Pugh, 1987) coordinated by the Intergovernmental Oceanographic Commission. GLOSS will provide the future core network for worldwide long term tide gauge recording.

The European network is described in the following pages on a country by country basis defining 'Europe' in the most general geographical sense from Iceland to North Africa and listing the countries represented in alphabetical order. For each country are given the addresses of authorities which supply MSL data to the PSMSL together

with telephone, telex, fax and electronic mail information where known; the GLOSS national contact names; and a representative compilation of contacts of individual engineers and scientists engaged in the measurement and analysis of MSL data. Most telephone and fax numbers for PSMSL and GLOSS addresses are shown as +country code-(area code)-number, where the area code usually contains a leading zero which is dropped for direct-dial international calls. Where more than one individual contact is available from an institution, then the first name is shown with subsequent names in brackets following it. If an individual's name has previously been included as a GLOSS contact, then it is not repeated.

We define the nationality of a scientist by the country in which he/she works. Expatriate European scientists now working in other continents who have contributed important papers on European sea level changes are included in their country of origin. European scientists whose work is exclusively on MSL changes in other regions (e.g. the Tropics) have not been included. At the end of the report an 'International Organisations and Projects' section lists the addresses of those international research institutions and activities relevant to the funding of and coordination of European and global tide gauge measurements and analysis.

We regard the compilation of names of individual scientists to be the most important component of such a network. An initial list was obtained from the following five sources:

- (1) Correspondence files of the PSMSL over the last five years. This identifies those scientists who have obtained MSL data from the PSMSL or who have otherwise been in correspondence with it.
- (2) The IGCP-200 membership list selecting those individuals with European addresses who listed 'tide gauges' as one of their research interests.
- (3) Published papers on European mean sea levels from 1985 onwards. This was obtained from the computerised catalogue of the library of the Proudman Oceanographic Laboratory, Bidston Observatory, Birkenhead, U.K. which has one of the most extensive collections of sea level publications in the world.
- (4) European scientists who attended a conference on sea level changes which was held in Norwich in September 1987 and which was sponsored by the CEC, UNEP and other organisations.
- (5) Researchers included in the CEC Climatology and Natural Hazards Programme mailing list on Climatic Hazards (Sea Level Changes and Coastal Flooding).

Sources (1)-(3) together should include most European researchers who can be regarded as 'active' in the field of tide gauge MSL research, while (4)-(5) provide an overlap with those engaged in climate-oriented European sea level research. However, as these sources are not necessarily expected to give a complete overview of

the MSL community, a preliminary list was circulated to researchers in every European country for their advice on further additions.

Following the names of most researchers can be found a specification of their MSL 'interests' from one of the following categories:

- TGO : Tide gauge operator and/or databanker of MSL data
- C : Climatological aspects of MSL changes
- PO : Physical Oceanography aspects of MSL changes
- G : Geological aspects of MSL changes
- GI : Geographical aspects of MSL changes including impacts
- GD : Geodetic aspects of MSL changes
- GL : Glaciological aspects of MSL changes
- CP : Coastal Protection aspects of MSL changes
- W : Water resources
- CEC : Participant in MSL aspects of the CEC Climate Programme

In many cases the researcher's interests are 'general' or are not well-known, in which case no specific interests are listed. However, the address is usually a good guide to a researcher's specialisation.

In conclusion, we hope that this network will serve as a first-order description of the community of interest in European mean sea level measurement and analysis from tide gauge records, that it will be of use to those people planning the participation in regional working groups and conferences, and that it can serve implicitly as a source of knowledge by encouraging international communication. We would, of course, be grateful to know of any errors and further additions.

Acknowledgements

This report was produced by the Proudman Oceanographic Laboratory (POL) in collaboration with the Permanent Service for Mean Sea Level. Partial funding to POL for this project was provided by the Commission of the European Communities. We would like to thank all those who made contributions to earlier versions of the report.

Address for Correspondence

Dr.P.L.Woodworth
Bidston Observatory
Birkenhead, Merseyside
United Kingdom L43 7RA

References

Bird, E.C.F. (1985) Coastline changes: a global view. Chichester: John Wiley, 219pp.

Pugh, D.T. (1987) The global sea-level observing system. Hydrographic Journal, No.45, 5-8.

Shennan, I. and Pirazzoli, P.A. (1987) International Geological Correlation Programme Project 200, Directory of Sea-Level Research (Second Edition). Published by the Department of Geography, University of Durham, UK. pp.92

Countries Represented in the Following Sections

Algeria	Israel
Austria	Italy
Belgium	Lebanon
Bulgaria	Libya
Channel Islands	Malta
Cyprus	Netherlands
Czechoslovakia	Norway
Denmark	Poland
Egypt	Portugal
Federal Republic of Germany	Romania
Finland	Spain
France	Sweden
German Democratic Republic	Tunisia
Greece	Turkey
Hungary	U.S.S.R.
Iceland	United Kingdom
Ireland	Yugoslavia

and 'International Organisations and Projects'

ALGERIA

Individual Contacts

Service Hydrographique
Institut National de Cartographie
123 Rue de Tripoli
H.Dey, Alger, Algeria

AUSTRIA

Individual Contacts

Dr. M. Kuhn
Institute of Meteorology
University of Innsbruck
A-6020 Innsbruck, Austria

Interest: GL

BELGIUM

PSMSL Data Suppliers

- (1) Ministerie van Openbare Werken
Bestuur der Waterwegen
Wetstraat, 155
1040 - Brussels, Belgium
- (2) Ministerie van Openbare Werken
Bestuur der Waterwegen
Dienst der Kust - Hydrografie
Administratief Centrum
Vrijhavenstraat, 3
8400 - Oostende, Belgium
- Tel: +32-(59)-501961
Telex: 81064
Fax: +32-(59)-507037

Note - The Brussels address is not a current data supplier.

Individual Contacts

- Prof.A.Berger
Universite Catholique de Louvain
Institut d'Astronomie et de Geophysique
Georges Lemaitre
Chemin du Cyclotron 2
B-1348 Louvain-la-Neuve
- Interest: CEC
- Prof.C.Baeteman
Vrije Universiteit Brussel
Pleinlaan 2
B-1050 Brussel, Belgium
- Interest: CEC
- Prof.Dr.Ir. J.Berlamont
Catholic University of Leuven
Hydraulics Laboratory
de Croylaan 2
B-3030 Leuven (Heverlee), Belgium
- Interest: PO,CP
- Ing.C.Van Cauwenberghe
(also Ing.P.Kerckaert)
Dienst der Kust - Hydrografie
- Interest: TGO,PO,CP,CEC
Address as above

CYPRUS

PSMSL Data Suppliers

- (1) Ministry of the Interior
Department of Lands and Surveys
Nicosia, Cyprus

Individual Contacts

Department of Ports
Limassol, Cyprus

CZECHOSLOVAKIA

Individual Contacts

Dr. P. Vyskocil
International Center on Recent
Crustal Movements
250 66 Zdiby, 98
County Praha-Vychod, Czechoslovakia

DENMARK

PSMSL Data Suppliers

(1) Det Danske Meteorologiske Institut Lynbyvej 100 DK-2100 Copenhagen O Denmark	Tel: +45-(1)-292100 Telex: 27138 METIN DK Fax: +45-(1)-271080
---	---

GLOSS Contact Points

(1) Det Danske Meteorologiske Institut	Address as above
(2) The Royal Danish Administration of Navigation and Hydrography Nautical Division Esplanaden 19 1263 Copenhagen K, Denmark	
(3) Dr. O. Bedsted Andersen Geodaetisk Institut Geodaetisk Afdeling 1 Gamelhave Alle 22 2920 Charlottenlund, Denmark	

Individual Contacts

Cdr.B.Rasmussen Det Danske Meteorologiske Institut	Interest: TGO Address as above
Dr.O.Remmer Geodetic Institute Gamle Have Alle 22 DK-2920 Charlottenlund, Denmark	Interest: GD

EGYPT

PSMSL Data Suppliers

(1) Egyptian National Oceanographic
Data Centre
Institute of Oceanography and Fisheries
Kayet Bay, Alexandria, Egypt

(2) Alexandrian Port Authority
106 Tr. El Horia Street
Alexandria, Egypt

GLOSS Contact Points

(1) The Director
National Institute of Oceanography
and Fisheries
Academy of Scientific Research and Technology
101 Kasr El-Ainy Street
Cairo, Egypt

(2) The Director
Suez Canal Research Center
Suez Canal Authority
Ismalia, Egypt

Individual Contacts

Dr.F.M.Eid
Oceanography Department
Faculty of Science
Alexandria University,
Alexandria, Egypt

Interest: PO

Dr.I.A.Maiyza
National Institute of
Oceanography and Fisheries

Interest: PO

Address as above

FEDERAL REPUBLIC OF GERMANY

PSMSL Data Suppliers

-
- | | |
|---|--|
| (1) Bundesanstalt fuer Gewasserkunde
Postfach 309
D-5400 Koblenz, FRG | Tel: +49-(261)-12431
Telex: 862499 |
| (2) Wasser und Schifffahrtsdirektion Nord
Postfach 44 67
D-2300 Kiel 1, FRG | |
| (3) Deutsches Hydrographisches Institut
Postfach 220
D-2000 Hamburg 4, FRG | Tel: +49-(40)-31901
Telex: 0211138 BMVHH D
Fax: +49-(40)-3190-5150 |

GLOSS Contact Points

-
- | | |
|--|------------------|
| (1) Deutsches Hydrographisches Institut
Section M1B | Address as above |
| (2) Alfred-Wegener-Institute for Polar
and Marine Research
Postfach 120161
Columbusstrasse
D-2850 Bremerhaven, FRG | |

Individual Contacts

Prof.Dr.H.J.Bolle Institut fuer Meteorologie WE 07 im FB Geowissenschaften Freie Universitaet Berlin Dietrich-Scaefers-Weg 6-10 D-1000 Berlin 41, FRG	Interest: CEC
Prof.Dr. A.Fuehrboeter Leichtweiss-Institut fuer Wasserbau der Technischen Universitaet Braunschweig Beethovenstrasse 51a D-3300 Braunschweig, FRG	
Dr.-Ing.J.Jensen Bundesanstalt fuer Wasserbau Aussenstelle Kueste Wedelerlandstrasse 157 D-2000 Hamburg 56, FRG	Interest: CEC

Dr.G.Linke Behoerde fuer Wissenschaft und Forschung Hamburg Geologisches Landesamt Hamburg Oberstrasse 88 D-2000 Hamburg 13, FRG	Interest: CEC
Dr.W.Lohrberg (also Dr.Paul) Bundesanstalt fuer Gewasserkunde	Interest: TGO Address as above
Dr.E.Pansch Deutsches Hydrographisches Institut	Interest: TGO Address as above
Dr.H-P.Plag Institut fuer Geophysik Olshausenstrasse 40 D-2300 Kiel 1, FRG	Interest: PO,G
Dr.H.Rohde Moorwe Denstr 14 D-2000 Hamburg 13, FRG	Interest: GD
Prof. Dr. C-D. Schoenwiese Institute for Meteorology and Geophysics Feldbergstrasse 47 D-6000 Frankfurt a.M. 1, FRG	Interest: C
Prof.Dr.W.Siefert Strom und Hafenbau Referat Hydrologie Unterelbe Lentzkai D-2190 Cuxhaven, FRG	Interest: CP
Hans von Storch Max Planck Institut fuer Meteorologie Bundesstrasse 55 2 Hamburg 13, FRG	
Prof. Dr.J.Willebrand (also Dr.W.Zenk) Institut fuer Meerskunde Universitaet Kiel Dusternbrooker Weg 20 D-2300 Kiel 1, FRG	Interest: PO

FINLAND

PSMSL Data Suppliers

(1) Finnish Institute for
Marine Research
P.O.Box 33
SF 00931
Helsinki 14, Finland

Tel: +358-(0)-331044

Individual Contacts

Mr.Pentti Malkki (also Mr.Kimmo Kahma)
Finnish Institute for Marine Research

Interest: C,PO,TGO
Address as above

FRANCE

PSMSL Data Suppliers

- | | |
|--|--|
| <p>(1) Service Hydrographique et
Oceanographique de la Marine
Etablissement Principal
B.P. 426-
13 Rue du Chatellier
29275 Brest Cedex, France</p> | <p>Telex: 940568 HYDRO BREST</p> |
| <p>(2) Institut Geographique National
2 Avenue Pasteur
94160 Saint-Mande(Seine), France</p> | <p>Tel: +33-(1)-43741215
Telex: IGN GNL 204989 F</p> |

GLOSS Contact Points

- | | |
|---|---|
| <p>(1) Service Hydrographique et
Oceanographique de la Marine</p> | <p>Address as above</p> |
| <p>(2) Dr.M.Fieux
Laboratoire d'Océanographie Physique
43 Rue Cuvier
75231 Paris Cedex 05, France</p> | |
| <p>(3) Mr.J-M.Verstraete
Institut Oceanographie
195 Rue St Jacques
75005 Paris, France</p> | |
| <p>(4) Terres Australes et Antartiques
Francaises
(a l'attention de M. Ballut)
34 Rue Desrenaudes
75017 Paris, France</p> | <p>Tel: +33-(1)-47669343</p> |
| <p>(5) The Director
O.R.S.T.O.M.
213 Rue Lafayette
75010 Paris Cedex 10, France</p> | |
| <p>(6) Dr.C. Boucher
Institut Geographique National
2 Avenue Pasteur
94160, Sainte-Mande (Seine), France</p> | <p>Tel: +33-(1)-43741215
Omnet: C.BOUCHER</p> |

Individual Contacts

Dr.J.C.Duplessy
Centre National de la Recherche Scientifique
Centre des Faibles Radioactivites
Laboratoire Mixte CNRS-CEA
Avenue de la Terrasse - B.P. No.1
F-91190 Gif-sur-Yvette, France

Interest: CEC

Dr.S.Faucheux
Environment Department
Centre Economie Espace Environment
Unite Associe au CNRS No.920
Universite de Paris 1
Pantheon Sorbonne
90 Rue de Tolbiac
75634 Paris, Cedex 13, France

Dr. M.Lefebvre (also Dr. J-F. Minster)
Groupe de Recherches de Geodesie Spatiale
18 Avenue Edouard Belin
31055 Toulouse, France

Interest: PO,GD

Dr. C. Le Provost
Directeur de Recherches au CNRS
Institut de Mecanique de Grenoble
BP 68 - 38402 St Martin d'Heres CEDEX, France

Interest: PO

Dr. P.A. Pirazzoli
UA 910 du CNRS
16 Rue de la Grange Bateliere
75009 Paris, France

Interest: G,GI,CEC

Dr. R.E. Quelennec
B.R.G.M.
Domaine de Luminy
13009 Marseille, France

Interest: CP

Prof. M.G. Riverdin
Museum National D'Histoire Naturelle
Oceanographique Physique
Laboratoire Associe L.A. 175 du CNRS
43-45 Rue Cuvier
75231 Paris, CEDEX 05, France

Interest: PO

Mr. B. Simon
Service Hydrographique et
Oceanographique de la Marine
13 Rue de Chatellier
BP 426
29275 Brest CEDEX, France

Interest: TGO,PO

GERMAN DEMOCRATIC REPUBLIC

PSMSL Data Suppliers

- (1) Wasserwirtschaftsdirektion Kuste Tel: +49-(821)-696201
23 Stralsund Telex: 317326Z WWDS DD
Badenstrasse 18, DDR-2300
German Democratic Republic
- (2) Geodaetisches Institut
Potsdam
German Democratic Republic

Note - The Geodaetisches Institut is not a current data supplier.

Individual Contacts

Dr. H. Montag Interest: GD,G
(also Dr.H.Kautzleben, Dr.-Ing.H.Weise)
Zentral Institut fuer Physik der Erde
Akademie der Wissenschaften der DDR
DDR-1561 Potsdam
Telegrafenberg A17
German Democratic Republic

Prof. H. Peschel
Thomas Mann Strasse 43
8020 Dresden
German Democratic Republic

Prof. Klaus Voigt (also Dr. K. Striggow) Interest: PO,G
Institute fuer Meereskunde
Akademie der Wissenschaften der DDR
2530 Rostock-Warnemunde
Seestrasse 15
German Democratic Republic

GREECE

PSMSL Data Suppliers

- (1) Hydrographer of the Navy
Hydrographic Service
Hellenic Navy Command
Athens TGN 1040, Greece

GLOSS Contact Points

- (1) Hydrographer of the Navy

Address as above

Individual Contacts

Dr.A.Lascaratos
University of Athens
Department of Applied Physics
Laboratory of Meteorology
33 Ippokratous Street
GR-10680 Athens, Greece

Interest: PO,CEC

Mr. H. Maroukian
Laboratory of Physical Geography
University of Athens
Panepistimiopolis
GR-15784 Zografou, Greece

HUNGARY

Individual Contacts

Prof. I. Joo, Dr-Sc.
General Director
College for Surveying and County Planning
of the University of Forestry and
Timber Industry
1-3 Pirosalma Street
H-8002 Szekesfehervar, Hungary

Interest: GD

ICELAND

PSMSL Data Suppliers

(1) The Hydrographer
Icelandic Hydrographic Service
Posthof 7094
127 Reykjavik, Iceland

Tel: +354-(91)-27733
Telex: 2048 VARDSK IS

GLOSS Contact Points

(1) Mr. G. Bergsteinsson
Icelandic Hydrographic Service

Address as above

Individual Contacts

Dr. Unnsteinn Stefansson
Chief, Oceanographic Department
Marine Research Institute
Skuagata 4
Reykjavik, Iceland

IRELAND

PSMSL Data Suppliers

- | | |
|--|---|
| (1) Ordnance Survey Office
Phoenix Park
Dublin, Eire | Tel: +353-(1)-213171
Telex: 30126
Cable: ORDSUR DUBLIN |
| (2) Dublin Port & Docks Board
Engineer's Office
East Wall Road
Dublin 1, Eire | Tel: +353-(1)-722777
Telex: 25476
Telegram: DREDGING DUBLIN |

GLOSS Contact Points

- | | |
|--|---|
| (1) Cmdt. M.C. Walsh
Ordnance Survey Office | Address as above |
| (2) National Board for Science & Technology
Shelbourne House
Shelbourne Road
Dublin 4, Eire | Telex: 30327 NBST E
Fax: +353-(1)-683762 |

Individual Contacts

- | | |
|---|------------------|
| Dr. R. Devoy (also Miss J. Scanlon)
Dept of Geography
University College Cork
College Road
Cork, Eire | Interest: G,CEC |
| Dr. M.C. Lyes
National Board for Science & Technology | Address as above |

ISRAEL

PSMSL Data Suppliers

- (1) The Director
Coast Study Division
Israel Ports Authority
P.O.B. 5 Ashdod, Israel

Individual Contacts

Prof. V. Goldsmith
Hunter College of the
City College of New York
Dept. of Geology and Geography
695 Park Avenue
New York, NY 10021, USA

Interest: G,PO

Prof. J. Hall
Marine Geology & Geomathematics Division
30 Malchei Israel St.
95 501 Jerusalem, Israel

ITALY

PSMSL Data Suppliers

- | | |
|--|---|
| (1) The Director
Istituto Idrografico della Marina
Passo Osservatorio 4
16100 Genova, Italy | Tel: +39-(10)-265451
Telex: 270435 MARIDR I
Telegraph: MARIDROGRAFICO
GENOVA |
| (2) Istituto Talassografico di Trieste
Viale R. Gessi 2
I-34123 Trieste, Italy | Tel: +39-(40)-305312
Telegraph: CORICERCHE
TRIESTE |
| (3) Ufficio Idrografico del Magistrato
Alle Acque
Venezia, Italy | |
| (4) Reparto Geodetico
Istituto Geografico Militare
50100 Firenze, Italy | |
| (5) CNR Laboratorio
Ca Papadopoli
1364 San Polo
Venezia, Italy | Tel: +39-(41)-5216811
Telex: 410095
Fax: +39-(41)-5216871 |

Note - The Reparto Geodetico is not a current data supplier.
Also that Italian tide gauges are, in principle, combined into a
network administered from the Ministero dei Lavori Pubblici (address
below).

GLOSS Contact Points

- | | |
|--|--|
| (1) Dott. Carlo Lusetti
Istituto Idrografico della Marina
Genova | Interest: PO,C

Address as above |
|--|--|

Individual Contacts

Dott. Ing. F.G. De Angelis Presidente III Sezione Consiglio Superiore LL.PP Ministero dei Lavori Pubblici Piazza XX Settembre Rome, Italy	Interest: TGO
--	---------------

Dr.S.Fais Universita di Cagliari Facolta di Ingegneria Istituto di Giacimenti Minerari Geofisica e Scienze Geologiche Cagliari, Italy	Interest: PO,C
Dr.S.Ferraro (also Dr.F.Stravisi) Istituto Talassografico di Trieste	Address as above
Prof.G.Maracchi IATA-CNR P. le delle Cascine 18 I-50132 Firenze, Italy	Interest: CEC
Dr.F.Mosetti Cattedra di Misure Oceanografiche Universita di Trieste Riva Ottaviano Augusto 9 I-34123 Trieste, Italy	Interest: PO,C
Prof. A. Palumbo Dept of Geophysics & Volcanology Universita Degli Studi di Napoli Largo S. Marcellino 10 Napoli, Italy	Interest: C,CEC
Prof. Lorenzo Papa Istituto Idrografico della Marina Genova	Interest: TGO,PO Address as above
Dr.A.Tomasin (also Dr.R.Frassetto) CNR Laboratorio, Venice	Interest: PO,TGO Address as above

LEBANON

Individual Contacts

Dr. Sami Lakkis
National Council for Scientific Research
Bld. Cite Sportive
Dagher & Fakhri building
Box 8281
Beirut, Lebanon

LIBYA

Individual Contacts

R.M.El-Bari
Marine Biology Research Centre
University of Al-Fateh
Tajura
P.O. Box 30830, Libya

MALTA

Individual Contacts

Port Department
Hydrographic Unit
Marina Pinto
Valetta, Malta

Dr. Louis Saliba
Department of Agriculture & Fisheries
The Royal University of Malta
Msida, Malta

NETHERLANDS

PSMSL Data Suppliers

(1) Rijkswaterstaat, Dienst Getijdewateren Postbus 20907 Hoofthoofdskade 1 2500 Ex 'S-Gravenhage, Netherlands	Tel: +31-(70)-889370 Telex: 33566 RWSWW NL Fax: +31-(70)-805199
--	---

Individual Contacts

Dr. S. Jelgersma Geological Survey of the Netherlands J00TB 157 Haarlem Netherlands	Interest: G,GI,CEC
--	--------------------

Dr. J. Oerlemans Institute of Meteorology and Oceanography University of Utrecht Princetonplein 5 Utrecht, Netherlands	Interest: GL
--	--------------

Prof. Dr. H. Tennekes (also Ir.P.Geerders) KNMI Postbus 201 3730 AE De Bilt, Netherlands	Interest: C
---	-------------

Ir. J van Malde (also Dr.J.G. de Ronde) Rijkswaterstaat	Interest: TGO,CEC Address as above
--	---------------------------------------

Dr. C.J. Van der Veen Byrd Polar Research Center Ohio State University 125 South Oval Mall Columbus, OH 43210, USA	Interest: GL
--	--------------

Prof. H. Wind (also Dr. P. Bolte) Delft Hydraulics Laboratory P.O.Box 152 8300 Emmeloord, Netherlands	Interest: GI
--	--------------

NORWAY

PSMSL Data Suppliers

- | | |
|---|--|
| (1) Statens Kartverk
Geodesidivisjonen
3500 Honefoss, Norway | Tel: +47-(67)-24100 |
| (2) Norges Sjøkartverk
Klubbgat 1
Postboks 60
4001 Stavanger, Norway | Tel: +47-(4)-532160
Telex: 73689 NSKV N |

GLOSS Contact Points

- | | |
|---|---------------------|
| (1) Norges Sjøkartverk | Address as above |
| (2) Norwegian Polar Research Institute
Rolfstangveien 12
P.O. 158
Oslo Lufthavn, Norway | |
| (3) Geophysics Institute
University of Bergen
St. Alle Gaten 70, New Line
N-5007, Bergen, Norway | Tel: +47-(5)-226200 |
| (4) Norsk Oseanografisk Komite
Sandakerveien 90
N-0483, Oslo 4, Norway | |

Individual Contacts

Mr. Reidar Leinebo
Norsk Oseanografisk Datasentir (NOD)
Fiskeridirektoratets Havforskningsinstitutt
Postboks 1870/72
5011 Bergen - Nordnes, Norway

POLAND

PSMSL Data Suppliers

(1) (Warsaw office):

Institute of Meteorology and
Water Management
01-673 Warszawa
Podlesna 61, Poland

Tel: +48-(22)-341651
Telex: 814331 HM PL

(Maritime Branch):

Institute of Meteorology and
Water Management
Maritime Branch
ul. Waszyngtona 42
81-342 Gdynia, Poland

Tel: +48-(58)-205231
Telex: 054216

Individual Contacts

Prof. Kazimierz Rozdzynski
(also Mr. Zbigniew Dziadziusko)
Institute of Meteorology and
Water Management
Maritime Branch, Gdynia

Interest: TGO,PO,GD,CP
Address as above

Szef Biura Hydrograficznego
Marynarki Wojennej
Gdynia, Poland

PORTUGAL

PSMSL Data Suppliers

(1) Instituto Geografico e Cadastral
Praca da Estrela
Lisbon, Portugal

(2) Instituto Hidrografico
Rua das Trinas 49
1296 Lisboa, Portugal

Tel: +351-(19)-601191/6
Telex: 65990 HIDROG P

(3) Instituto Nacional de Meteorologia
e Geofisica
Rua C
Aeroporto
1700 Lisbon, Portugal

GLOSS Contact Points

(1) Mr. Jose Torres Sobral
Technical Director
Instituto Hidrografico

Address as above

ROMANIA

Individual Contacts

Ing. Gheorghe Serpoianu
Institutul Roman de Cercetari Marine
Bulevardul Lenin no. 300
Constantza, Romania

Directia Hidrografica Maritima
Code 8700
Constantza, Romania

SPAIN

PSMSL Data Suppliers

- | | |
|--|---|
| (1) Instituto Geografico Nacional
Seccion de Nivelaciones (Mareografos)
General Ibanez de Ibero 3
28003 Madrid, Spain | Tel: +34-(91)-2333800
Telex: 23465 IGC E |
| (2) The Director
Instituto Hidrografico de la Marina
Tolosa Latour no.1
Cadiz, Spain | Tel: +34-(956)-253802
Telex: 76102 MARIH E |
| (3) Director
Instituto Espanol de Oceanografia
Av. Brasil 31,
28020 Madrid, Spain | Tel: +34-(91)-5974443
Telex: 44460 IEOD E |

and Instituto Espanol de Oceanografia
Unidad 'Centro de Datos Oceanograficos' Address as above

GLOSS Contact Points

- | | |
|---|------------------|
| (1) Mr.Fernandez Diaz and Mr. Garcia Moron
Instituto Espanol de Oceanografia | Address as above |
|---|------------------|

Individual Contacts

Dr. J. P. Pascual (also Drs.V.Verger,E.Saumell,P.Garcia, M.Blasco,A.Cueva,M.Lopez Garcia) Dept Geografia Universitat de Valencia AP 22.060 46010 - Valencia, Spain	Interest: G,GI,C,PO
--	---------------------

SWEDEN

PSMSL Data Suppliers

(1) Sveriges Meteorologiska och
Hydrologiska Institut
Box 923
S601 76 Norrköping, Sweden

Tel: +46-(11)-158000
Telex: 64400 SMHI S
Fax: +46-(11)-170207/8

GLOSS Contact Points

(1) Sveriges Meteorologiska och
Hydrologiska Institut

Address as above

Individual Contacts

Dr. M. Ekman
National Land Survey
Division of Geodetic Research
S-801 82 Gävle, Sweden

Interest: GD

Prof. N. Morner
Geological Institute
Stockholm University
S-10691 Stockholm, Sweden

Interest: G

Dr.H-G.Scherneck
Institute of Geophysics
University of Uppsala
S-755 90 Uppsala, Sweden

Interest: GD,PO

Prof. Anders Stigebrandt
Dept. of Oceanography
Gothenburg University
Box 4038
S-40040 Göteborg, Sweden

Mr. Jan Szaron
Swedish Meteorological & Hydrological
Institute Oceanographical Laboratory
P O Box 2212
S-403 14 Göteborg, Sweden

TUNISIA

Individual Contacts

Le Directeur
Office National des Peches
B.P.13
La Goulette, Tunisia

TURKEY

PSMSL Data Suppliers

- (1) Director General
Turkish State Meteorological Service
P.O.B. 401 Ankara, Turkey
- (2) Kandilli Observatory
Cengelkoy
Istanbul, Turkey

Note - neither of these authorities are current data suppliers.

GLOSS Contact Points

- (1) Harita Genel Komutanligi
06100- Ankara, Turkey

Individual Contacts

The Director
Institute of Marine Sciences
P.O. Box 28
33731 Erdemli
Icel, Turkey

Interest: PO

Seyir, Hidrografi ve Osinografi
Dairesi Baskanligi
Cubuklu-Istanbul
Turkey

UNION OF SOVIET SOCIALIST REPUBLICS

PSMSL Data Suppliers

- | | |
|--|------------------------------------|
| (1) The Director
World Data Centre B1 (Oceanography)
Moscow 117296
Molodezhnaya 3, USSR | Telegraph: Moscow V-296,
WDC B1 |
|--|------------------------------------|

GLOSS Contact Points

- | | |
|--|--|
| (1) USSR State Committee for
Hydro-Meteorology &
Natural Environment Control
12 P. Morozov Street
Moscow 123376, USSR | |
| (2) Dr. V. Smirnov
Director, All-Union Research Institute
of Hydro-Meteorological Information
World Data Centre
6 Korolev Street
Obninsk, Kaluga 249020, USSR | Tel: 2-39-10
Telex: 412633
Fax: 255-66-84
(International direct
dial not possible) |
| (3) Arctic and Antarctic Research Institute
38 Bering Street
199-226 Leningrad, USSR | Tel: +7-(812)-352-0319 |
| (4) Oceanographic Committee of the
Soviet Union
11 Gorky Street
Moscow 103009, USSR | |

Individual Contacts

- | | |
|--|-------------|
| Dr. R. K. Klige (also A.O.Selivanov)
Water Problems Institute
Academy of Sciences of the USSR
13/3 Sadovo-Chernogryazskaya
103064 Moscow, USSR | Interest: C |
| Dr. G.S. Metreveli (also I.G.Plotkina, N.K. Kuchuashvili)
Tbilisi State University
Tbilisi 380028
Prospekt Chavchavadze 1
Georgia, USSR | |

Dr. E. Plakhin
Institute of Oceanography
Academy of Sciences of the USSR
Krasikova St 23
Moscow 117218, USSR

Interest: PO

Prof. A. Sarkisyan
Dept. of Numerical Mathematics
USSR Academy of Sciences
11 Gorky Street
Moscow 103009, USSR

Chairman, Soviet Geophysical Committee
Molodezhnaya 3
Moscow B-296, USSR

UNITED KINGDOM

PSMSL Data Suppliers

-
- | | |
|---|---|
| (1) Proudman Oceanographic Laboratory
Tidal Computation Section
Bidston Observatory
Birkenhead
Merseyside L43 7RA, U.K. | Tel: +44-(51)-653-8633
Telex: 628591 OCEAN G
Fax: +44-(51)-653-6269
Omnet: POL.BIDSTON |
| (2) British Antarctic Survey
High Cross
Madingley Road
Cambridge CB3 0ET, U.K. | |
| (3) Ministry of Agriculture, Fisheries
and Food
Land Drainage Division
Great Westminster House
Horseferry Road, London SW1P 2AE, U.K. | |
| (4) Tidal Branch
Hydrographic Department
M.O.D.
Taunton
Somerset TA1 2DN, U.K. | |
| (5) Isle of Man Harbour Board
Engineers Office
Douglas
Isle of Man, U.K. | |
| (6) The Director
Ordnance Survey
Romsey Road
Maybush
Southampton, U.K. | |
| (7) Storm Tide Warning Service
Meteorological Office
Bracknell
Berks, U.K. | |
| (8) Aberdeen Harbour Board
16 Regent Quay
Aberdeen, Scotland, U.K. | |

Note - the Proudman Oceanographic Laboratory should now be regarded as the main U.K. MSL data supplier as it has in recent years taken over the role of several of the other tide gauge authorities.

GLOSS Contact Points

- | | |
|--|---|
| (1) Mr.G.Alcock
Proudman Oceanographic Laboratory | Address as above |
| (2) Dr. D.T. Pugh
Institute of Oceanographic Sciences
Deacon Laboratory
Brook Road, Wormley
Surrey GU8 5UB, U.K. | Tel: +44-(428)-794141
Telex: 858833
Omnet: D.PUGH |

Individual Contacts

- | | |
|--|---|
| Prof. V. Ashkenazi
Dept. of Civil Engineering
University of Nottingham
University Park, Nottingham, U.K. | Interest: GD |
| Dr.T.F.Baker
(also Drs.R.A.Flather, L.J.Rickards, J.M.Vassie, P.L.Woodworth)
Proudman Oceanographic Laboratory | Interest: PO,C,CEC,GD
Address as above |
| Dr.M.Beran
Institute of Hydrology
Wallingford
Oxfordshire OX10 8BB, U.K. | Interest: W,C |
| Mr.Ron Bordley
Ordnance Survey
Romsey Road
Maybush
Southampton SO9 4DH, U.K. | Interest: GD |
| Dr.H.Brammer
Institute of Development Studies
Sussex University
Brighton, Sussex
BN1 9RE, U.K. | Interest: GI |
| Dr.R.W.G.Carter,
Dept. of Environmental Science
The New University of Ulster
Coleraine
Co.Londonderry BT52 1SA, N.I., U.K. | Interest: G |
| Prof. B. Denness
Newcastle University
Dept. of Naval Architecture & Shipbuilding
Armstrong Building
Queen Victoria Road
Newcastle-upon-Tyne NE1 7RU, U.K. | Interest: CP |

Mr. C. Firth Geography Department West London Institute Lancaster House Borough Road, Isleworth Middlesex TW7 5DU, U.K.	Interest: G,GI,CP
Dr. N. Flemming (also Dr.K.P.Koltermann) Institute of Oceanographic Sciences	Interest: PO,G Address as above
Dr.R.B.Heywood (also Dr.C.S.M.Doake) British Antarctic Survey	Interest: PO,GL Address as above
Dr. B. Johns Dept. of Meteorology Univ. of Reading P.O. Box 239, Reading RG6 2AU, U.K.	Interest: C
Dr.M.L.Parry Dept. of Geography University of Birmingham Birmingham B15 2TT, U.K.	Interest: GI
Prof.E.Penning-Rowse Middlesex Polytechnic Queensway, Enfield, Middlesex EN3 4SF, U.K.	Interest: CP,GI
Prof.L.E.J.Roberts (also Dr.G.R.Bigg, Prof.K.M.Clayton, Dr.R.Kay) School of Environmental Sciences University of East Anglia Norwich NR4 7TJ, U.K.	Interest: PO,C,GI,CP,G
Dr. G.deQ. Robin Scott Polar Research Institute Lensfield Road Cambridge CB2 1ER, U.K.	Interest: C,GL
Dr.P.Rowntree (also Dr.A.Gilchrist,Mr.R.Hyde,Dr.J.Mitchell,Dr.A.Tuck) Meteorological Office London Road, Bracknell Berkshire RG12 2SZ, U.K.	Interest: C
Prof.D.E.Smith Department of Geography Coventry Lanchester Polytechnic Priory Street Coventry, West Midlands, CV1 5FB, U.K.	Interest: G,CEC

Dr.R.H.Thomas
Joint Oceanographic Institute
1755 Massachusetts Avenue NW
Washington, DC 20036, USA

Interest: GL

Professor K.R.Thompson
Department of Oceanography
Dalhousie University
Halifax, Nova Scotia
Canada B3H 4J1

Interest: PO

Dr. M. Tooley (also Dr.I.Shennan)
Dept of Geography
University of Durham
South Road
Durham DH1 3LE, U.K.

Interest: G,GI,C,CEC

Mr. C. Vita-Finzi
Dept of Geography
University College London
26 Bedford Way, London WC1H 0AP, U.K.

Interest: G

Prof. T.M.L. Wigley
(also Dr.R.G.Warrick, Dr.S.Raper)
Climatic Research Unit
University of East Anglia
Norwich NR4 7TJ, U.K.

Interest: C,GI,CEC

YUGOSLAVIA

PSMSL Data Suppliers

- (1) The Director
Hidrometeoroloski Zavod
Titogradu, Yugoslavia

- (2) The Director
Hidrometeoroloski Zavod
Ljubljana, Yugoslavia

- (3) Hidrografski Institut
Jugoslovenske Ratne Mornarice
58000 Split, Yugoslavia
Tel: +38-(58)-44433
Telex: 26270 YU-HIRM

- (4) Dr.M.Orlic
Geofizicki Institut
Faculty of Sciences
University of Zagreb
PO Box 224
41000 Zagreb, Yugoslavia
Tel: +38-(41)-420222
Telex: 22575 GEOZAG YU

- (5) The Director
Institut za Oceanografiju i Ribarstvo
Post Pretinac 114
Split, Yugoslavia
Tel: +38-(58)-46682

Note - Yugoslavian data now supplied primarily from (3) and (4).

GLOSS Contact Points

- (1) Mr.Vlado Dadic
Institut za Oceanografiju i Ribarstvo
Split
Interest: TGO
Address as above

Individual Contacts

- Dr.M.Gacic (also Dr.M.Zore-Armanda)
Institut za Oceanografiju i Ribarstvo
Split
Interest: PO
Address as above

INTERNATIONAL ORGANISATIONS AND PROJECTS
--

CEC	: CEC Climate Programme Rue de la Loi 200 B-1049 Brussels, Belgium	Tel: +32-(2)-235-2111 Telex: 21877 COMEU B Fax: +32-(2)-235-0145
FAGS	: Prof. P. Melchior President of FAGS Observatoire Royal de Belgique 3 Avenue Circulaire B-1180 Bruxelles, Belgium	Tel: +32-(2)-375-2484 Telex: 21565 OBSBEL B
	Prof. R. Wielebinski Secretary of FAGS Max-Planck Institut fuer Radioastronomie Auf dem Hugel 69 D-5300 Bonn 1, FRG	Tel: +49-(228)-525300 Telex: 886440 MPIFR D
GLOSS	: Dr.A.Tolkachev Intergovernmental Oceanographic Commission, UNESCO 7 Place de Fontenoy Paris 75700, France	Tel: +33-(1)-4568-3988 Telex: 204461F Paris Omnet: IOC.SECRETARIAT
ICES	: International Council for the Exploration of the Sea (ICES) Regional Oceanographic Data Centre Palaegade 2-4 1261 Copenhagen K, Denmark	Tel: +45-(1)-154225 Telex: 22498 ICES DK Fax: +45-(1)-934215 Omnet: ICES.DK
ICSU	: Secretariat, International Council of Scientific Unions 51 Bld. de Montmorency 75016 Paris, France	Tel: +33-(1)-45250329 Telex: 630553 ICSU F
IGCP- 274	: Dr.Orson van der Plassche Project Leader, IGCP-274 (Coastal Evolution in the Quaternary) Institute of Earth Sciences Free University P.O.Box 7161 1007 MC Amsterdam, Netherlands	Tel: +31-(20)-548-5736 Telex: 10399 INTVU NL Fax: +31-(20)-462457
IHB	: The Director International Hydrographic Bureau Avenue President J.F. Kennedy Monte Carlo, Monaco	Tel: +33-(93)-506587 Telex: 469870 MCS CARLO

IOC	: Secretary Intergovernmental Oceanographic Commission, UNESCO 7 Place de Fontenoy 75700 Paris, France	See under GLOSS
PSMSL	: Permanent Service for Mean Sea Level Bidston Observatory Birkenhead Merseyside L43 7RA, U.K.	Tel: +44-(51)-653-8633 Telex: 628591 OCEAN G Fax: +44-(51)-653-6269 Omnet: PSMSL.POL
UELN	: Dr.O.Remmer Secretary, United European Levelling Network Geodetic Institute Gamle Have Alle 22 DK-2920 Charlottenlund, Denmark	Tel: +45-(1)-631833 Telex: 15184 SEISMO DK
UNEP	: United Nations Environment Programme PO Box 30552 Nairobi, Kenya	Telex: 22068 UNEP KE or 22173 UNEP KE
UNESCO	: Mr.S.Morcos Division of Marine Sciences UNESCO 7 Place de Fontenoy 75700 Paris	See under GLOSS
WMO	: World Climate Programme Department World Meteorological Organisation Case Postale 5 CH1211 Geneva 20, Switzerland Chief, Ocean Affairs Division World Weather Watch Department World Meteorological Organisation Case Postale 5 CH1211 Geneva 20, Switzerland	Tel: +41-(22)-730-8111
WOCE	: WOCE - IPO Institute of Oceanographic Sciences Deacon Laboratory Brook Road, Wormley Surrey GU8 5UB, U.K.	Tel: +44-(428)-794141 Telex: 858833 Omnet: WOCE.IPO